

**REMARKS**

The claims now pending are claims 3, 5, 16, 18, 20, 22, 24, 26 and 27. Claim 3 has been amended to further define the invention. Claim 22 has been amended, adding the missing phrase after the word “is,” to overcome the claim objection.

In response to the Examiner’s request that the applicant resubmit an oath/declaration a copy of the original oath/declaration of the inventors is attached.

**35 U.S.C. § 103**

The Examiner has rejected all pending claims as obvious, based on 35 U.S.C. § 103(a), in light of Yoshida et al. (U.S. 4,714,794).

The Examiner stated that because “Yoshida reference discloses a composition that comprises C<sub>6</sub>-C<sub>24</sub> alkyl naphthalenes” and “[t]hese naphthalenes are mixed with known lubricating oils,” it renders the present invention obvious. This statement presumes that all alkylated naphthalenes are alike. Skilled artisans in chemistry know that all alkylated naphthalenes do not behave in the same way, primarily because the behavior of a compound depends on many more factors than just the carbon content of a substituted alkyl group. For example, as relevant here, are the shape and number of substituted groups.

As amended herein the present invention claims different alkylated naphthalenes than Yoshida. Specifically, the claims now require that the naphthalenes be alkylated by at least two alkyl groups while Yoshida teaches monoalkylated naphthalenes. Support for this amendment is found throughout the specification and particularly in the formula shown at paragraph 20.

A further difference that refutes obviousness is that Yoshida requires “secondary” alkyl groups only. In the first sentence describing Yoshida, column 2 lines 10-13, the reference

states “[t]he synthetic oil of this invention consists of, or comprises as the main component, mixed monoalkylnaphthalenes which have each a secondary alkyl group...” (emphasis added). The general formula and structure diagram corroborates the opening sentence, as seen in column 2, lines 47-55. To be sure, secondary alkyl groups are a “requirement [that] must be met for the purpose of” Yoshida, see Column 2, lines 28-29. However, in the present invention, there is no such limitation. As indicated in paragraph 21 and in Claim 3, there are no limitations on the shape of the alkyl group, only that it contain 6 to 30 carbon atoms.

As noted above, the different number of substituted alkyl groups in the present invention compared to Yoshida is another structural difference refuting obviousness. The first sentence describing Yoshida, column 2 lines 10-13, states that Yoshida consists of “mixed *monoaklylnaphthalenes*.” (emphasis added). Moreover, paragraph 20 and 21 of the present invention’s published application outlines a generic chemical structure for suitable alkylated naphthalenes. The structure diagram explicitly allows for more than one substituted alkyl group. Finally, paragraph 21 states that the “alkylated naphthalene may also be a mixture of various mono, di, and higher order alkylated naphthalenes.” The present invention covering “various mono, di, and higher order” alkylated naphthalenes is not rendered obvious by a reference whose utility requires only mono-substituted naphthalenes.

In order to establish § 103 prima facie obviousness, it is necessary to determine if the differences between the prior art and the present application are taught or suggested by the prior art. Nothing in Yoshida suggests using a branched alkyl groups, di or poly-substituted naphthalenes, or alkyl groups other than secondary alkyl groups. Therefore, Yoshida does not render alkylated naphthalenes of the present invention obvious because they are drastically different in many significant aspects.

Moreover, Yoshida teaches away from the alkylated naphthalenes of the present invention by teaching that four specific requirements must be met for Yoshida to have advantageous lubricating qualities. Column 2, lines 18-27 state:

The mixture of alkylnaphthalenes which makes up, or is comprised as the main component in, the synthetic oil of this invention is required to be such that:

- (1) The alkylnaphthalenes are each a mono-alkyl-naphthalene
- (2) The number of carbon atoms of the alkyl group is 6 to 24.
- (3) The alkyl group is a secondary alkyl group.
- (4) The molar ratio of a  $\alpha$  – to  $\beta$  – substituted alkylnaphthalenes is at least 1.0.

To be sure, the following sentence demands that “[t]he above four requirements *must be met for the purpose of this invention.*” (emphasis added). The present invention only satisfies the second requirement, and nothing resembling the fourth requirement can be found in the specification or claims of the present invention. It does not follow that a reference that absolutely demands a four-part test in order for the “purpose of the invention” to be met renders obvious a later invention that only meets one of those requirements. Obviousness requires that the reference teach or suggest the differences between the application and the reference. Here is the opposite, the reference demands that certain differences will hinder lubricating properties, thus teaching away from the present invention.

Moreover, the data obtained by the Applicant showed vast improvements in lubricating properties that are surprising and unexpected. As indicated in the attached Declaration of Dr. Ed Hessel:

Example	Alkylated Naphthalene in Blend	Structure/Composition Of Alkylated Naphthalene	Olefin used as alkylating agent	Induction Time at 160 °C
Example 11 of US patent application 09/898,844	Alkylated Naphthalene 1 of US patent application 09/898,844	NALUBE <sup>®</sup> KR-012, a polyalkylated naphthalene	Alpha-olefin	18
Example 12 of US patent application 09/898,844	Alkylated Naphthalene 2 of US patent application 09/898,844	NALUBE <sup>®</sup> KX-1070, a polyalkylated naphthalene	Branched and linear C8-C10 internal olefin, rich in C9 internal olefin	48
Example 13 of US patent application 09/898,844	Alkylated Naphthalene 3 of US patent application 09/898,844	A polyalkylated naphthalene	Branched and linear C11-C13 internal olefin, rich in C12 internal olefin	>80
Comparative Example 9	Mono(tripropyl) naphthalene, consistent with claims of Yoshida	A monoalkylated naphthalene	Branched and linear C8-C10 internal olefin, rich in C9 internal olefin	9
Comparative Example 10	Mono(dodecyl) naphthalene, consistent with claims of Yoshida	A monoalkylated naphthalene	Alpha-olefin	39
Comparative Example 11	Synnestic <sup>®</sup> 5, consistent with claims of Yoshida	A monohexadecenyl alkylated naphthalene	Alpha- olefin	15

The experimental results in the above table demonstrate that the present invention (examples 12 and 13) have a surprising improvement in thermo-oxidative stability compared to Yoshida (Comparative Examples 9, 10, and 11). The improvement in lubricating property is so

surprising and significant that it cannot be said the reference that defines the Comparative Examples renders obvious those examples consistent with the present invention.

The only thing in common between Yoshida and the present invention is the number of carbon atoms attached to a naphthalene. Alkyl substitute shape and number vary in many different ways thereby affecting the lubricating qualities of. Yoshida teaches away from changing these alkyl substitute shapes and numbers by stating, in a list of requirements, that changing these properties would subvert the purpose of the patent. And, finally, the lubricating qualities of the present invention are proven to be surprisingly superior as seen in the experimental data. Thus, Applicants respectfully submit that the invention disclosed in the present application is not obvious in view of the teaching of Yoshida et al.

### **CONCLUSION**

Based on the foregoing amendments and remarks, Applicants respectfully request reconsideration and withdrawal of the rejection of claims and allowance of this application.

### **AUTHORIZATION**

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. **13-4500**, Order No. 0444-4083US1. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. **13-4500**, Order No. 0444-4083US1. A

DUPLICATE OF THIS DOCUMENT IS ATTACHED.

Respectfully submitted,  
MORGAN & FINNEGAN, L.L.P.

Dated: October 7, 2005

By:



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